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The

FLORIDA ENTOMOLOGIST

Official Organ of The Florida Entomological Society, Gainesville, Florida.

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ENTOMOLOGICAL PAPERS AT THE CITRUS SEMINAR

On Oct. 5 Mr. W. W. Yothers read a paper on "Some Fundamentals of Grove Pest Control." He stated that there are three possible viewpoints: (1) To do nothing, leaving the control of the pests to their natural enemies. (2) To take such measures as will reduce their numbers to the point of commercial control. This will necessitate frequent repetitions of the control measures. (3) To eradicate the pest—expensive in the first costs but perhaps often cheapest in the end. Which method should be pursued will depend upon the insect. Or a combination of the methods will often be most practical.

Mr. Yothers also read a very valuable paper by Dr. A. T. Speare of the U. S. Bur. of Ent., founded on work done in Mr. Yothers' laboratory at Orlando. It has long been a matter of common observation that the citrus rust mites and mealy bugs tend to disappear with the advent of the rainy season. It has been generally supposed that this was due to their being washed off by the heavy rains. But according to Dr. Speare the true cause is the rapid development of two fungi under the influence of the high humidity of the rainy season. The fungus which infects the rust mites is a species of *Cordiceps*. Infected rust mites may be recognized by their shrunken appearance and of course absence of movement. The fungus which attacks the mealy bugs is an undescribed species of *Entomophora*. Infested mealy bugs may be recognized by their soft spongy texture. Under a sharp knife they can be cut like cheese.

These discoveries are not only of great scientific interest but of equal practical importance. If a grower finds that one of these fungi is rapidly developing in his grove, under suitable weather conditions he may often safely leave the control of the pest to the fungus, and save the cost of spraying.

Another paper on entomogenous fungi was read by Dr. E. W. Berger, who gave a brief account of his growing, in pure cultures, of two fungi hitherto not so grown and of his discovery of a new strain of the Red Whitefly-Fungus.

The new fungi are *Aschersonia goldiana* on Cloudy-winged Whitefly from Cuba (specimens received at the Experiment Station) and on an unknown aleyrodid from Winter Park, Florida; and the Cuban Aschersonia found infecting the Pyriform Scale, and Liriodendron Scale in Florida, and the Tessellated Scale in Porto Rico.

The new strain of the Red Whitefly-Fungus was discovered on some holly and bay leaves sent in from a hammock at Winter Park, Fla. It fruits freely in the culture bottles during summer, a fact which has not been true for the other strains heretofore grown. This fact will make it possible to grow it in smaller quantities during summer as needed, thus always assuring a fresher product than heretofore when the whole crop had to be grown in late winter and early spring and kept in cold storage. Indications are that it is also an unusually virile strain.

Prof. J. R. Watson presented the results of some recent experiments on spraying for thrips. He exhibited a table giving the results of spraying to lessen thrip marks on fruit. This covered the results in seven groves from Lake to St. Lucie counties. In groves where the thrips averaged from 25 to 64 per bloom, about half of the unsprayed fruit was marked to such an extent as to lower its grade from brights to goldens if otherwise perfect. 38% of this scarring was prevented by a single spraying. This repaid the cost of spraying many times over. Groves in which the thrips averaged 10 per bloom did not repay the cost of spraying for thrips alone. But where they were being sprayed at blossoming time for rust mite or scab the additional cost of adding ¾ pt. of Black Leaf 40 per 100 gallons was repaid twice over.

The proper time to spray is when the trees are in full bloom, and the proper solution at least 1 pt. of Black Leaf 40 to 100 gallons of the rust mite spray solution.

Mr. Neal F. Howard gave an interesting account of the Mexican Bean Beetle investigations of the Bur. of Entomology, U. S. D. A., in Alabama, Georgia and Tennessee. There appears to be no hope of stopping the beetles and growers of legumes will have to plan substituting other crops and immune species. Fortunately, the velvet bean, both bush varieties and climber, are immune, except that the adult beetles do feed some upon them, so that this bean may have to be substituted as a cover crop and forage in place of cow peas and beggar weed. Snap beans appear doomed. The use of poisons in its control have proved unsatisfactory. Investigations in Mexico, in search of natural enemies, have so far been fruitless.

Mr. Chaffin read a paper on mealy bugs. This is printed elsewhere in this journal.

MINUTES OF MEETINGS

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ciety, in special session at Gainesville October 5, 1921, that Dr. Speare be congratulated upon the success which has so far attended his efforts, and

"Further, That the Secretary of the Society communicate with the Chief of Bureau of Entomology expressing the hope of the Society that Dr. Speare will be assigned to further investigational work in Florida to the end that this work be completed."

There being no further business, the Society adjourned.

J. CHAFFIN, *Secretary.*

PERSONALS

Among our out of town members present at the Citrus Seminar were W. W. Yothers and A. C. Mason of the U. S. Ent. Lab. at Orlando; E. F. DeBusk, County Agent of Lake; W. R. Briggs, Agent for Manatee County; Mr. Seth Walker of the Citrus Exchange; Mr. K. E. Bragdon, formerly County Agent of Brevard but now Field Agent with the Citrus Exchange Supply Co.; and Mr. C. M. Hunt, Assistant Nursery Inspector.

Miss Evelyn Osborn, formerly Assistant in Entomology in the Experiment Station, was on Aug. 27 married to Mr. Chas. M. Knapp of Syracuse, N. Y.

Prof. Carl J. Drake received the degree of Ph. D. from Ohio State University in June. He has been spending the summer in Mississippi, Arizona, and California.

W. S. Blatchley received the degree of LL. D. from the University of Indiana in June. Dr. Blatchley is one of less than a dozen to receive this degree from Indiana University. He expects to return to his winter home in Dunedin shortly.